WHAT IS CLAIMED IS:

1.   A method for determining the amount of charge which can be drawn from a storage battery comprising:

    determining a battery voltage profile and a battery current profile over at least one time interval;

    smoothing the battery voltage profile and the battery current profile using at least two different smoothing measures;

    determining voltage differences between the battery voltage profile smoothed using a second smoothing measure and the battery voltage profile smoothed using a third smoothing measure, with the third smoothing measure producing greater smoothing than the second smoothing measure;

    determining current differences between the battery current profile smoothed using a second smoothing measure and the battery current profile smoothed using a third smoothing measure, with the third smoothing measure producing greater smoothing than the second smoothing measure;

    calculating characteristic values from quotients of the voltage differences and the current differences;

    utilizing the characteristic values for a time interval to determine an interval characteristic value; and

    determining of the amount of charge which can be drawn from the storage battery from at least one interval characteristic value for at least one time interval.

2.   The method of Claim 1 wherein the smoothing is carried out by filtering with different time constants, with a second time constant as a second smoothing measure being greater than a third time constant as a third smoothing measure.

3.   The method of Claim 1 wherein the smoothing is at least partially carried out by averaging.

4.   The method of Claim 1 further comprising utilizing a mean value of the characteristic values of a time interval in order to calculate the interval characteristic value for the time interval.

5.   The method of Claim 1 wherein the characteristic values are used for determination of the interval characteristic value only when the magnitude of the current difference is less than a defined second limit value.

6.   The method of Claim 5 wherein the second limit value is in the region of the 30-hour to 80-hour current of the storage battery.

7.   The method of Claim 5 wherein the second limit value corresponds approximately to the 50-hour current of the storage battery.

8.   The method of Claim 5 wherein the characteristic values are used for determination of the interval characteristic value only when the magnitude of the current difference of the battery current smoothed using the second smoothing measure and of the battery current smoothed using a first smoothing measure is less than a defined first limit value, with the first smoothing measure producing greater smoothing than the second smoothing measure.

9.   The method of Claim 8 wherein the first limit value is in the region of the 30-hour to 80-hour current of the storage battery.

10.   The method of Claim 8 wherein the first limit value corresponds approximately to the 50-hour current of the storage battery.

1   11.   The method of Claim 1 wherein the characteristic values are
2   used for determination of the interval characteristic value only when the
3   battery currents smoothed using the second smoothing measure are
4   greater than a third limit value and are less than a fourth limit value.

1   12.   The method of Claim 11 wherein the third limit value is
2   approximately the 10-hour current and the fourth limit value is
3   approximately the 30-hour current of the storage battery.

1   13.   The method of Claim 1 further comprising integrating
2   permissible characteristic values in a time interval to calculate an
3   integrated characteristic value for the time interval, integrating the times
4   in which permissible characteristic values are present to determine a time
5   period for the time interval and to calculate the interval characteristic
6   value as the quotient of the integrated characteristic value of the time
7   interval and the time period.

1   14.   The method of Claim 13 further comprising weighting the
2   interval characteristic values as a function of a state of operation of the
3   storage battery.

1   15.   The method of Claim 1 further comprising determining the
2   amount of charge which can be drawn from the storage battery from at
3   least one interval characteristic value as a function of a state of operation
4   of the storage battery.

1   16.   The method of Claim 15 further comprising determining the
2   amount of charge which can be drawn from the storage battery from at
3   least one interval characteristic value as a function of at least one of the
4   state of charge of the storage battery and the battery temperature.

1   17.   The method of Claim 14 wherein the relationship between

2 the amount of charge which can be drawn and the interval characteristic

3 values, the state of charge and the battery temperature are described

4 using families of characteristics which are determined empirically or by

5 calculation.

1   18.   The method of Claim 1 further comprising:

2   learning a family of characteristics to determine new state

3 interval characteristic values for a storage battery in a new state as a

4 function of states of charge and battery temperatures;

5   calculating a measure coefficient from an interval

6 characteristic value for a determined state of charge and a determined

7 battery temperature and from the new state interval characteristic value

8 for the state of charge and the battery temperature; and

9   determining the amount of charge which can be drawn from

10 the storage battery as a function of the measure coefficient, the state of

11 charge, and the battery temperature.

1   19.   The method of Claim 18 wherein the measure coefficient is

2 the difference between the interval characteristic value and the new state

3 interval characteristic value.

1   20.   The method of Claim 18 wherein the measure coefficient is

2 the ratio of the interval characteristic value and the new state interval

3 characteristic value.

1   21.   A monitoring device for a storage battery comprising:

2   a measurement component for measuring battery voltages

3 and battery currents; and

4   an evaluation component, wherein the evaluation component

5 is designed to carry out a method comprising:

6   determining a battery voltage profile and a battery current

7 profile over at least one time interval;

8   smoothing the battery voltage profile and the battery current

9 profile using at least two different smoothing measures;

10   determining voltage differences between the battery voltage

11 profile smoothed using a second smoothing measure and the battery

12 voltage profile smoothed using a third smoothing measure, with the third

13 smoothing measure producing greater smoothing than the second

14 smoothing measure;

15   determining current differences between the battery current

16 profile smoothed using a second smoothing measure and the battery

17 current profile smoothed using a third smoothing measure, with the third

18 smoothing measure producing greater smoothing than the second

19 smoothing measure;

20   calculating characteristic values from quotients of the

21 voltage differences and the current differences;

22   utilizing the characteristic values for a time interval to

23 determine an interval characteristic value; and

24   determining of the amount of charge which can be drawn

25 from the storage battery from at least one interval characteristic value for

26 at least one time interval.